WHAT IS CLAIMED IS:

1. A device to implant impurities into a semiconductor wafer, comprising:

a pressure compensation unit;

a beam gun to shoot an ion beam at a semiconductor wafer;

first and second ion gauges; and

a switching device to selectively connect the first or second ion gauge to the pressure compensation unit.

2. A device to implant impurities into a semiconductor wafer according to claim 1, further comprising a current sensor to sense the number of implanted ions.

3. A device to implant impurities into a semiconductor wafer according to claim 1, wherein

the beam gun is positioned upstream from a process chamber,

the first ion gauge is positioned outside of the process chamber, and

the second ion gauge is positioned within the process chamber.

4. A device to implant impurities into a semiconductor wafer according to claim 3, wherein

the device further comprises a cryo pump to minimize the pressure within the process chamber, and

the first ion gauge is positioned between the process chamber and the cryo pump.

5. A device to implant impurities into a semiconductor wafer according to claim 1, further comprising:

a disk faraday to receive ions from the ion gun; and

a current meter to count the number of electrons flowing to the disk faraday to neutralize the ions.

6. A device to implant impurities into a semiconductor wafer according to claim 1,

wherein a portion of the ions are neutralized before reaching the semiconductor wafer.

7. A device to implant impurities into a semiconductor wafer according to claim 1, wherein the device is an Axelis GSD platform implanter.

8. A device to implant impurities into a semiconductor wafer according to claim 1, wherein

a plurality of wafers are arranged on a disk which rotates about an axis of rotation substantially parallel to an ion beam path,

at least some of the wafers have a resist layer, and

resist outgassing occurs when the ion beam strikes the resist layer.

9. A device to implant impurities into a semiconductor wafer according to claim 8, wherein

a faraday receives ions from the ion gun,

a current meter counts the number of electrons flowing to the disk faraday to neutralize the ions,

the disk has a radialy extending slot arranged among the wafers,

the ion beam travels through the slot as the disk rotates, and

the disk is arranged between the faraday and the ion gun.

10. A device to implant impurities into a semiconductor wafer according to claim 1, wherein

the chamber has a wall, and

the second ion gauge extends through the wall of the chamber.

11. A device to implant impurities into a semiconductor wafer according to claim 1, wherein

a plurality of wafers are arranged on a disk which rotates about an axis of rotation substantially parallel to an ion beam path,

the disk moves radially at a radial speed with respect to the ion beam, and

the radial speed is varied to control the amount of time the ion beam is focused at

different radial positions on the disk.

12. A device to implant impurities into a semiconductor wafer according to claim 11, wherein the radial speed decreases when it is determined that the number of impurities being implanted is relatively low.

13. A device to implant impurities into a semiconductor wafer according to claim 11, wherein:

the first and second ion gauges sense pressure;

a faraday to receive ions from the ion gun; and

the device further comprises:

a current meter to count the number of electrons flowing to the faraday to neutralize the ions; and

the pressure compensation unit varies the radial speed of the disk as a function of the current sensed by the current meter and as a function of the pressure sensed by the ion gauge connected to the pressure compensation unit.

14. A device to implant impurities into a semiconductor wafer according to claim 1, wherein the first ion gauge is used for high energy implants and the second ion gauge is used for low energy implants.

15. A device to implant impurities into a semiconductor wafer, comprising:

a process chamber having a wall;

a pressure compensation unit;

a disk to support a plurality of semiconductor wafers within the process chamber, the disk having a radialy extending slot arranged among the wafers;

a beam gun positioned upstream from the process chamber to shoot an ion beam at the semiconductor wafers;

a cryo pump to minimize the pressure within the process chamber;

first and second ion gauges, the first ion gauge being positioned between the process chamber and the cryo pump, the second ion gauge extending through the wall of the process chamber;

a switching device to selectively connect the first or second ion gauge to the pressure compensation unit;

a faraday to receive ions from the ion gun after the ions travel through the slot in the disk; and

a current meter to count the number of electrons flowing to the disk faraday to neutralize the ions.